

## ANTIBACTERIAL HERBS FOR FOOD-BORNE PATHOGENS

As noted in the first chapter, the contamination of our food supply with resistant bacteria is becoming a serious problem, and it is likely to worsen as population increases. It turns out, however, that herbs have been used in our foods for millennia for protecting us from infectious and pathogenic disease.

A group of researchers at Cornell University found in an examination of traditional food preparations that as local climate temperature increases the number of spices used in food also increases. That is, in hot climates a lot of spices are used; in cold climates, almost none (the cold weather itself protects food supplies). In examining the spices most commonly used, they found that they all possessed powerful antimicrobial activity. The most powerful of the herbs tested were garlic, onion, allspice, and oregano, which killed 100 percent of the food-borne bacteria for which the researchers tested. The study, not surprisingly, found that many spices are synergists and when combined exhibit antibacterial action much stronger than they do alone. These multiple spice combinations produce the most powerful antimicrobial effects when salt and lemon or lime juice is also added during cooking.

### *Powerful Spice Blends*

Some of the most powerful traditional blends of spices are chili powder (capsicums, onion, paprika, garlic, cumin, oregano), five-spice powder (white or black pepper, cinnamon, anise, fennel, cloves), salsa (capsicums, onion, garlic, tomatoes, lime), and curry powder (tumeric [a potent antibacterial antifungal, antiparasitic, and antiviral herb], curry leaves [a potent antiamebic, antimalarial, and antidiarrheal herb], cumin, cardamom, ginger, mustard, coriander).

Some of the spices, though only killing about 25 percent of the number of bacteria types tested, were exceptionally strong against one or two bacteria alone. Among them are rosemary, thyme, marjoram, sage, and lemon or lime juice. All the spices listed in the box on page 66 are noted in the University Of Chicago NAPRALERT database, one of the most extensive herbal data bases in the world, as showing antibacterial activity in *in vitro*, *in vivo*, or human trials.